# (19) World Intellectual Property **Organization**

International Bureau





### (43) International Publication Date 16 June 2005 (16.06.2005)

PCT

## (10) International Publication Number WO 2005/055350 A1

(51) International Patent Classification<sup>7</sup>: H01M 8/02, 8/12

(21) International Application Number:

PCT/JP2004/017901

(22) International Filing Date:

25 November 2004 (25.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2003-403182

2 December 2003 (02.12.2003) JP

- (71) Applicant (for all designated States except US): NISSAN MOTOR CO., LTD. [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa, 2210023 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): SATOU, Fuminori. NAKAJIMA, Yasushi.
- (74) Agents: MIYOSHI, Hidekazu et al.; Toranomon Kotohira Tower, 2-8, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 (JP).

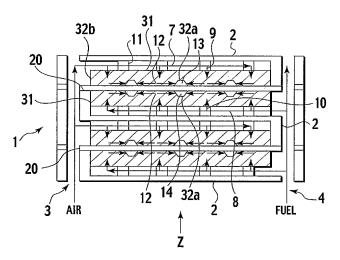
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: SOLID OXIDE FUEL CELL



(57) Abstract: A solid oxide fuel cell (1, 101, 201) has a plurality of electric power-generating elements (20) each including a solid oxide electrolyte (21) and a porous electrode section (22, 23) to which gases are supplied. The fuel cell includes a plurality of first porous current collector layers (31), each electrically connected to the electrode section, at least one separator (2) disposed between at least one pair of associated adjacent ones of the plurality of electric power-generating elements to electrically connect the pair, a gas supply flow channel (7, 8) defined between the at least one separator and the associated one of the plurality of current collector layers, a plurality of gas supply flow passages (9, 10) branched off from the gas supply channel to reach an electrode section of the associated one of the plurality of electric power-generating elements, and a plurality of gas exhaust flow channels (13, 14) permitting a remnant of gas, provided to the associated one of the plurality of electric power-generating elements via the plurality of gas supply branch flow passages, to be exhausted through the associated one of the first current collector layers.



#### 

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.